North Fork Grindstone Creek (1010) Use Attainability Analysis



Boone County Regional Sewer District 1314 North 7th Street Columbia, MO 65201-3902

Prepared by
Barr Engineering Company
July 2005

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Use Attainability Analysis

Boone County Regional Sewer District 1314 North 7th Street Columbia, MO 65201-3902

July 2005



Barr Engineering Company 3236 Emerald Lane Jefferson City, MO 65109 Phone: (573) 636-5331 Fax: (573) 636-5323

JUL 1 3 2005

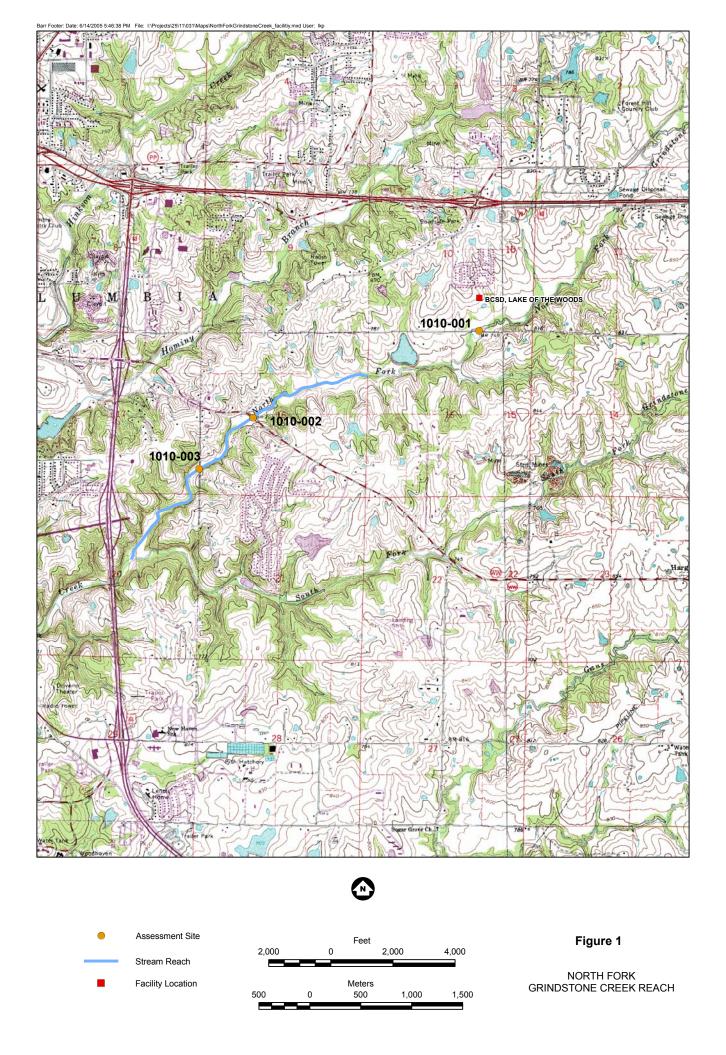
Data Sheet A - Water Body Identification

WATER PROTECTION PROGRAM

Water Body Name (from USGS 7.5' quad): North Fork Grindstone Creek
8-digit HUC: 10300102
Missouri WBID #: 1010
County: Boone
Upstream Legal Description: East Line Section 16, T48N, R12W
Downstream Legal Description: Confluence with South Fork Grindstone Creek (located in NE 1/4 Section 20, T48N, R12W)
Upstream Coordinates: UTM (Z15N) 563674E; 4310695N
Downstream Coordinates: UTM (Z15N) 561357E; 4308906N
Discharger Facility Name(s): BCSD, Lake of the Woods, Permit # MO0034444
Discharger Permit Number(s): See Above.
Number of Sites Evaluated: 3
Name of Surveyor and Telephone Number: Alan Fandrey (573-638-5013)
Organization: Barr Engineering Company
Position: Civil Engineer

I, the undersigned, hereby affirm to the best of my knowledge, that all information reported on this UAA datasheet is true and accurate.

Signed:	Rlun	Paul	Date:	7-1-05	



Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

	Missouri WBID #: 1010-	-001			scription: North Fork Grin	
Ī	Site GPS Coordinates: 50	64758E; 4311131N		crossing on north	h line Section 15, T48N, R1	3W - Boone County
Ī	Date & Time: 06/26/05;	2 p.m.		Facility Name: 1	BCRSD - Lake of the Wood	ls
	Personnel: Alan J. Fandr	rey		Permit Number:	MO00034444	
	Current Weather Condition	ons: Clear - 90s		Weather Conditi	ons for Past 7 days: Last ra	in June 13
Ī	Photo Ids: Upstream: 1U	JS1 & 1US2 Dow	vnstream:	1DS1& 1DS2 Other	··	
JS€ Γ	es Observed*:				To	
	Swimming	☐ Skin diving		SCUBA diving	☐ Tubing	☐ Water skiing
	☐ Wind surfing	☐ Kayaking		Boating	□ Wading	Rafting
	Hunting	☐ Trapping		Fishing	None of the above	Other:
	rounding Condition as of interest.)	s *: (Mark all that p	promote o	or impede recreational u	ses. Attach photos of evide	nce or unusual
	· ·	S*: (Mark all that p	· 	or impede recreational u	ses. Attach photos of evide	nce or unusual
	as of interest.)	T	☐ MD	-	-	T-22
	s of interest.) City/county parks	Playgrounds	☐ MD	C conservation lands onal forests	☐ Urban areas	☐ Campgrounds
tem	s of interest.) City/county parks Boating accesses	☐ Playgrounds ☐ State parks ☐ Fence	☐ MD0	C conservation lands onal forests	☐ Urban areas ☐ Nature trails ☑ Other: Agriculture	☐ Campgrounds
tem	□ City/county parks □ Boating accesses □ No trespass sign	☐ Playgrounds ☐ State parks ☐ Fence	☐ MD0 ☐ Nation	C conservation lands onal forests	☐ Urban areas ☐ Nature trails ☑ Other: Agriculture	☐ Campgrounds
tem	s of interest.) City/county parks Boating accesses No trespass sign	☐ Playgrounds ☐ State parks ☐ Fence	☐ MDO ☐ Nation ☐ Stee	C conservation lands onal forests p slopes	☐ Urban areas ☐ Nature trails ☐ Other: Agriculture suburban	☐ Campgrounds ☐ Stairs/walkway

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

^{*}Some of this information is not intended to directly influence a decision on any one particular recreational use analysis but may point to conditions that need further analysis or that effect another use.

Data Sheet B - Site Characterization

Page Two – WBID #<u>1010-001</u>:

Stream Mor Upstream		vsical D	imensions:				
Riffle	Width (ft):		Length (ft):	Avg. Depth	(ft):	Max. Depth (ft):	·
Run	Width (ft):		Length (ft):	Avg. Depth	(ft):	Max. Depth (ft):	
⊠ Pool	Width (ft):	20-40	Length (ft): 100		``	Max. Depth (ft):	
⊠ Flow	Present?	⊠ Yes	□No		t^3/sec): < 0.1	Wax. Boptii (it).	2.1
Downstre	am View	Physica	l Dimensions:				
Riffle	Width (ft):		Length (ft): 15	Avg. Depth	(ft): 0.1	Max. Depth (ft):	0.2
Run	Width (ft):	······································	Length (ft):	Avg. Depth		Max. Depth (ft):	
□ Pool	Width (ft):	25	Length (ft): 50	Avg. Depth		Max. Depth (ft):	
Flow	Present?	X Yes	□No		t ³ /sec): see at		1.0
<u> </u>							<u> </u>
Substrate*:	(These valu	es should	add up to 100%.)				
	Cobble		% Gravel	% Sand	% Silt	80% Mud/Clay	% Bedrocl
	acteristics		all that apply.)				
Odor:		Sewage	Musky	Chemical	⊠ None	Other:	
Color:		Clear	Green	Gray	Milky	Other: brown	1
Bottom De		Sludge	Solids	Fine sediments	None	Other: constr	uction debris
Surface De	posit:	Oil	⊠ Scum	⊠ Foam	None None	Other:	
Pool depth lik *This information comprehensive in	cely due to on is not to bunderstanding	o scour and some used some of water	nt bridge. It bridge. It bridge. It bridge. It bridge.	recreational use design	nation but rath	terviews) to this form ter is to provide a more ded to directly influence that effect another use.	
I, the unders datasheet is t	igned, he	reby aff accurate	irm to the best of e.	my knowledge, t	hat all info	rmation reported o	
Signed:	Mlar	NA	andury	Date:	1-06-	05	
Organization:	BE	C	<i>i</i>	Position	n: <u>Eng</u>	- 05	



Photo ID 1010-001US1: Upstream (North Fork Grindstone Creek)



Photo ID 1010-001US2: Upstream (North Fork Grindstone Creek)



Photo ID 1010-001DS1: Downstream (North Fork Grindstone Creek)



Photo ID 1010-001DS2: Downstream (North Fork Grindstone Creek)

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

	Missouri WBID #: 1010-	002				cription: North Fork Grind	
	Site GPS Coordinates: 56	52486E; 4310298N		County	ıg ın \	West 1/2 Section 16, T48N	, R12W; BID 10 - Boone
	Date & Time: 5/25/05 - 4	₽ p.m		Facility Nan	ne: B	CRSD - Lake of the Wood	s
	Personnel: Tim J. Fandre	y		Permit Num	ber: 1	MO0034444	
	Current Weather Condition	ons: Partly Cloudy	- 70s	Weather Co	nditio	ons for Past 7 days: Last ra	in on May 22
	Photo Ids: Upstream: 2U	JS1 & 2US2 Dow	nstream:	2DS1 &2DS2 (Other:	1010-002O1	
		,		·			
Us	es Observed*:						
	Swimming	☐ Skin diving		SCUBA diving		☐ Tubing	☐ Water skiing
	☐ Wind surfing	☐ Kayaking		Boating		□ Wading	Rafting
	Hunting	☐ Trapping		Fishing		None of the above	Other:
	rrounding Condition as of interest.)	s*: (Mark all that p	promote of	r impede recreation	nal us	es. Attach photos of evider	nce or unusual
	☐ City/county parks	Playgrounds		C conservation lan	ds	Urban areas	Campgrounds
	☐ Boating accesses	☐ State parks	☐ Natio	onal forests		☐ Nature trails	☐ Stairs/walkway
	☐ No trespass sign	⊠ Fence	☐ Steep	slopes		Other:	
Εv	idence of Human Use	2*•					
	⊠ Roads	☐ Foot paths/pri	nts	Dock/platform		☐ Livestock Watering	RV / ATV Tracks
	☐ Rope swings	☐ Camping Sites		☐ Fire pit/ring		☐ NPDES Discharge	☐ Fishing Tackle
	Other:						

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Data Sheet B - Site Characterization

Page Two – WBID #<u>1010-002</u>:

Stream Morj Unstream		veical D	imensions:						
⊠ Riffle	Width (ft)	· · · · · · · · · · · · · · · · · · ·	Length (ft): 10)	Avg. Depth ((ft): 0.2	M	Iax. Depth (ft):	0.3
Run	Width (ft)	:	Length (ft):		Avg. Depth (fax. Depth (ft):	
Pool	Width (ft)	:	Length (ft):		Avg. Depth (Iax. Depth (ft):	
⊠ Flow	Present?	⊠ Yes	□No			³ /sec): see bel		op (10).	
Downstre	am View	Physical	Dimensions:						
Riffle	Width (ft)		Length (ft):		Avg. Depth ((ft):	N	Iax. Depth (ft):	<u>.</u>
⊠ Run	Width (ft)	: 2.0	Length (ft): 21		Avg. Depth (Iax. Depth (ft):	0.25
⊠ Pool	Width (ft)	: 5.0	Length (ft): 12		Avg. Depth (· · · · · · · · · · · · · · · · · · ·		Iax. Depth (ft):	
⊠ Flow	Present?	X Yes	□No			³ /sec): less tha		Luit. Dopin (1t).	
40%	ctation*:	409	add up to 100%.) % Gravel unt of vegetation or	10% S		% Silt ssment site)	% N	Mud/Clay	10% Bedrock
Water Char	acteristic	s*: (Mark	all that apply.)						
Odor:		Sewage	Musky		Chemical	⊠ None		Other:	
Color:		Clear	Green		Gray	Milky		Other:	
Bottom Dep Surface Dep		Sludge Oil	Solids		Fine sediments	None None	F"	Other:	
			1 1 Scum		Foam				
·	Please atta	ach addit	Scum ional comments	(inclu		□ None on from inte		Other:	1.
This information comprehensive the decision on the rather than 1, the unders	Please atta on is not to understandi recreation u	ach addit be used so ng of wate se analysis	ional comments of a removal of a removal of a but may point to colir to the best of the be	(inclu recrea quently	ding informati ational use design y, this information ns that need furth	None on from intendential is not intendented analysis or the	er is to preed to direct	Other: s) to this form rovide a more ectly influence act another use.	a.
This information to the state of the state o	Please atta on is not to understandi recreation u signed, he true and	be used song of wate analysisereby affaccurate	ional comments of a removal of a removal of a but may point to colir to the best of the be	inclu recrea quently ondition	ding informational use design y, this informations that need further knowledge, the distribution of the control	None on from intention but rather is not intender analysis or that all information.	er is to pred to direct that effect that effect that in the the that in the	Other: s) to this form rovide a more ectly influence a ct another use.	n this UAA



Photo ID 1010-002US1: Upstream (North Fork Grindstone Creek)



Photo ID 1010-002US2: Upstream (North Fork Grindstone Creek)



Photo ID 1010-002DS1: Downstream (North Fork Grindstone Creek)



Photo ID 1010-002DS2: Downstream (North Fork Grindstone Creek)



Photo ID 1010-002O1: (North Fork Grindstone Creek)

Data Sheet B - Site Characterization

(A separate data sheet must be completed for each site)

	Missouri WBID #: 1010-	003				cription: North Fork Grind	
	Site GPS Coordinates: 56	52006E; 4309787N		crossing at County	east li	ne Section 12, T48N, R12V	V; BID 11 - Boone
	Date & Time: 5/25/05 - 4	:30 p.m.		Facility Na	me: B	CRSD - Lake of the Wood	s
	Personnel: Tim J. Fandre	y		Permit Nur	nber:]	MO0034444	
	Current Weather Condition	ons: Partly Cloudy	- 70s	Weather C	onditio	ons for Past 7 days: Last ra	in on May 22
	Photo Ids: Upstream: 10	10-003US Dow	nstream:	1010-003DS	Other:		
,		<u> </u>					
Us	es Observed*:						
	☐ Swimming	☐ Skin diving		SCUBA diving		☐ Tubing	☐ Water skiing
	☐ Wind surfing	☐ Kayaking		Boating		□ Wading	Rafting
	☐ Hunting	☐ Trapping		Fishing		None of the above	Other:
	rrounding Condition as of interest.)	s*: (Mark all that p	promote or	r impede recreation	onal us	es. Attach photos of evider	nce or unusual
	☐ City/county parks	Playgrounds	□ MDC	C conservation la	nds	Urban areas	☐ Campgrounds
	☐ Boating accesses	☐ State parks	☐ Natio	onal forests		☐ Nature trails	☐ Stairs/walkway
	☐ No trespass sign	□ Fence	Steep	slopes		Other:	
Εv	idence of Human Use	2*•					
	⊠ Roads	☐ Foot paths/pri	nts	Dock/platform	l	☐ Livestock Watering	RV / ATV Tracks
	☐ Rope swings	☐ Camping Sites		☐ Fire pit/ring		☐ NPDES Discharge	☐ Fishing Tackle
	Other:						

Site Locations Map(s): Attach a map of entire segment with assessment sites clearly labeled. Mark any other items that may be of interest. (Include photographs)

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Data Sheet B - Site Characterization

Page Two – WBID #<u>1010-003</u>:

□ Riffle Width		Length (ft):	Avg. Depth	(ft):	Max. Depth	(ft):
Run Width	(ft):	Length (ft):	Avg. Depth		Max. Depth	
⊠ Pool Width	(ft): 5.0	Length (ft): 11	Avg. Depth	·· · · · · · · · · · · · · · · · · · ·	Max. Depth	
Flow Preser	t? Xes		Estimated (fi		Max. Bopti	(10). 0.7
Downstream Vi	ew Physic	cal Dimensions:				
⊠ Riffle Width	(ft): 3.0	Length (ft): 8.0	Avg. Depth	(ft): 0.2	Max. Depth	(ft): 0.25
Run Width	(ft):	Length (ft):	Avg. Depth	(ft):	Max. Depth	
Pool Width	(ft):	Length (ft):	Avg. Depth	(ft):	Max. Depth	·
Flow Preser	it? 🛚 Yes	s 🔲 No	Estimated (fi	t³/sec): same as		
votio Vocatatia	**					
Vegetation on rock	SS.	mount of vegetation or alg	gal growth at the asse	essment site)		
vegetation on rock	SS.	ark all that apply.)	gal growth at the asse	essment site)	Other:	
Vegetation on rock	stics*: (Ma	ark all that apply.)			Other:	
Vegetation on rock ter Characteri Odor: Color:	stics*: (Ma	ark all that apply.) e	☐ Chemical	⊠ None		
Megetation on rock Meter Characteri Odor: Color: Bottom Deposit: Surface Deposit:	stics*: (Ma Sewag Sludge Sludge	ark all that apply.) e	Chemical Gray Fine sediments Foam		Other: Other: Other:	
Megetation on rock Inter Characteri Odor: Color: Bottom Deposit: Surface Deposit: Imments: Please It is information is not prehensive underst sion on the recreation on the recreation.	stics*: (Ma Sewag Sludge Oil attach add t to be used anding of wa on use analy	ark all that apply.) The Musky Green Solids Scum ditional comments (incomplete conditions. Consequents but may point to conditions of a recondition of the best of reconditions.	Chemical Gray Fine sediments Foam cluding informatic creational use designently, this informatio itions that need furth	None Milky None None None ion from internation but rathern is not intender analysis or the	Other: Other: Other: Other: or is to provide a moded to directly influe that effect another under the control of the control o	ore nce a use.
Ater Characteri Odor: Color: Bottom Deposit: Surface Deposit: mments: Please is information is no prehensive underst sion on the recreati he undersigned asheet is true a	stics*: (Ma Sewag Clear Sludge Oil attach add to be used anding of wa on use analy hereby and accura	ark all that apply.) The Musky Green Solids Scum ditional comments (incomplete conditions. Consequents but may point to conditions of a recondition of the best of reconditions.	Chemical Gray Fine sediments Foam cluding informatic creational use designently, this informatio itions that need furth	None Milky None None None nation from internation but rathern is not intender analysis or the laternal analysis or the laternal all information.	Other: Other: Other: Other: or is to provide a moded to directly influe that effect another unation reporter	ore nnce a nse. ed on this UAA



Photo ID 1010-003US: Upstream (North Fork Grindstone Creek)



Photo ID 1010-003DS: Downstream (North Fork Grindstone Creek)